IN THE DRAWINGS

The attached replacement sheets of drawings include changes to FIGS. 5 and 6 showing the switch knob 506 and the transistor Q5 606. The changes are indicated on the annotated sheets for FIGS. 5 and 6 and discussed below in response to the Examiner's objections. The replacement and annotated sheets follow the Remarks of this Amendment. Annotated sheet 1 of 2 shows changes to the figures originally filed with the application and Annotated sheet 2 of 2 shows support for these changes in figures filed with the provisional application 60/418,135.

REMARKS

Claims 1-17 are currently pending in the application. Claims 18-21 have been withdrawn as indicated by the Examiner.

Claims 9 and 13 have been amended. Claim 9 has been amended to recite that the braking logic is configured to interrupt a power connection to the motor before the valve moves to the closed configuration. Support for the amendment to claim 9 may be found throughout the specification, for example, in paragraphs 0030 and 0031. Claim 13 has been amended to recite that the cutout portion includes a convex surface. Support for the amendment to claim 13 may be found throughout the specification, for example, in paragraphs 0026 and 0030. No new matter has been added.

Amendments to the specification have been made to correct minor typographical errors. Support for the amendments to the specification may be found in the figures and throughout the specification. No new matter has been added.

I. Election/Restrictions

Applicant acknowledges that the Examiner has withdrawn claims 18-21 pursuant to 37 C.F.R. §1.142(b). Withdrawal of claims 18-21 is reflected in the listing of the claims.

II. Drawings

The Examiner has objected to the drawings for failing to comply with 37 C.F.R. §1.84 (p)(5) because they do not include every feature of the invention specified in the claims. The Examiner has identified reference number 506 and the electrical switch as not being shown.

Applicant has submitted replacement sheets in compliance with 37 C.F.R. §1.121(d) for FIGS. 5 and 6. The reference number 506 has been added to FIGS. 5 and 6, as indicated on the included annotated sheets. Support for the addition of the reference number 506 may be found in FIG. 5 from U.S. Provisional Application Serial No. 60/418,135, filed October 12, 2002, which is incorporated by reference in its entirety

in the present application. A copy of FIG. 5 from the 60/418,135 application is attached to the Appendix with the replacement sheets.

Applicant has also added reference number 606 to FIG. 6 to show the source switch or p-n-p transistor Q5 606 referred to in paragraph 0029. Support for the addition of reference number 606 may be found in FIG. 6 from U.S. Provisional Application Serial No. 60/418,135 as discussed above. A copy of FIG. 6 from the provisional application is attached to the Appendix showing the reference number 606.

As discussed below, the electrical switch is shown in the figures as a transistor. For example, FIG. 5 shows p-n-p transistor Q10 408 and FIG. 6 shows p-n-p transistor Q5 606. Additional transistors are shown in the figures.

Therefore, Applicant respectfully requests that the objection to the drawings under 37 C.F.R. §1.84 (p)(5) be withdrawn.

III. Claim Objections

The Examiner objected to claim 13 for claiming a concave surface whereas the specification recites a convex surface. Applicant has amended claim 13 to claim a convex surface as described in paragraphs 0026 and 0030.

Applicant respectfully requests that the objection to claim 13 be withdrawn.

IV. Claim Rejections

A. Claim Rejections under 35 U.S.C. §112

The Examiner rejected claims 1-21 under 35 U.S.C. §112 for failing to comply with the written description requirement. With respect to claims 1-8, the Examiner states that the only mention of a switch in the specification is switch 414 and that claim 2 recites that the electrical switch is a transistor which is not mentioned in the specification. The Examiner also states that there is no description of how or when the electrical switch is turned off. With respect to claims 9-17, the Examiner states that the claim language "the braking logic configured to terminate rotation of the motor shaft by converting mechanical energy of the motor shaft into thermal energy" is not found in the disclosure or is it understood how it works.

Applicant respectfully traverses the Examiner's §112 rejections of claims 1-21. Applicant respectfully asserts that the claimed invention has been described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention.

With respect to claims 1-8, independent claim 1 recites in part an electrical switch coupled to the bias circuit, the electrical switch configured to turn on only while the bias circuit generates the bias signal; and a mechanical switch configured to turn on just before the electrical switch is turned off. An exemplary system 100 is described in the specification, where a sensor generates a signal for activation. When the activation signal is received, a bias signal is generated from a bias circuit. For example, when the activation signal is generated, integrated circuit pin OP1 404 is driven low for seven-tenths of a second and OP2 406 is driven low for a complete flushing cycle. With both integrated circuit pins OP1 404 and OP2 406 in the low active state, p-n-p transistor Q10 408, a type of electrical switch, supplies a voltage to the motor 106 and p-n-p transistor Q13 418 and n-p-n transistor Q14 420 initiate the rotation of the motor shaft 128, the rod cam 108 and the switch cam 112. As the motor shaft 128, the rod cam 108 and the switch cam 112 turn, mechanical switch S101 414 turns on, connecting poles 2 to 3, connecting the motor 106 to a supply voltage. (See paragraph 24). Integrated circuit pin OP1 404 is driven high after seven tenths of a second. As described in paragraph 0025, the motor 106 operates as a generator applying a positive voltage to the collectors of p-n-p transistor Q10 408 and n-p-n transistor Q11 424. In this manner the electrical switch is turned off. As further described in the specification, the duration of the biasing signal can vary from about seven-tenths to about five seconds, for example, when an RC circuit controls the duration of the bias to p-n-p transistor Q13 418 and n-p-n transistor Q14 420. (See paragraph 28.)

Another exemplary system 600 also describes the electrical switch and the mechanical switch. As described beginning in paragraph 29, an activation signal is generated when a user departs the field and a sensor generates an electrical or optical signal. An integrated circuit pin 14 602 is driven high for about seven-tenths of a second. With the integrated circuit pin 14 602 in an active high state, p-n-p transistor

Q4 604 biases a source switch or n-p-n transistor Q5 606 and the electrical switch is turned on. The electrical switch provides power to the motor 106 and initiates rotation of the motor shaft 128, the rod cam 108 and the switch cam 112. As the motor shaft 128, the rod cam 108 and the switch cam 112. turn, a single pole single throw switch S601 608 connects the motor 106 to the power source, the mechanical switch is turned on. After seven-tenths of a second, the integrated circuit pin 14 602 is driven low and, similar to the system 100, the electrical switch is turned off.

Therefore, Applicant asserts that both an electrical switch and a mechanical switch are described and shown and that the relationship between the mechanical switch being turn on just before the electrical switch is turned off is also described in the specification.

With respect to the rejection of claim 2, support for the term "transistor" is found through out the specification, such as the n-p-n and p-n-p transistors described in the system 100 and the system 600.

With respect to claims 9-17, Applicant has amended claim 9 to recite that the braking logic is configured to interrupt a power connection to the motor before the valve moves to the closed configuration. Support for this amendment may be found through out the specification, for example in paragraph 0031, where the "integrated circuit turns off the motor 106 just before the face plate 116 engages the flat portion of the rod cam 108." As described in paragraph 0021, the face plate 116 is biased against the flat portion 124 of the rod cam 108 when the flushing cycle is completed and the flushing valve is closed. Based on the amendment to claim 9, the Examiner's rejection of claims 9-17 have been mooted.

Claims 18-21 have been withdrawn, thereby mooting the Examiner's rejection.

Accordingly, Applicant requests that the rejection of claims 1-17 under 35 U.S.C. §112 be withdrawn.

B. Claim Rejections under 35 U.S.C. §102(b)

The Examiner rejected claims 1-21 under 35 U.S.C. §102(b) as being anticipated by Muderlak (WO 97/13088). According to the Examiner, Muderlak discloses a flush

valve system having a sensor 100, a bias circuit and electrical switch 102, a mechanical switch 110 that can turn on just before the electrical switch is turned on and the mechanical switch is turned off.

Applicant respectfully traverses the Examiner's rejection of claims 1-21 as being anticipated by Muderlak.

Muderlak discloses an automatic flush valve actuation device. Muderlak teaches the operation of the actuation device where "Following activation of the motor 56 by a signal generating means, a bridging contact CR1 is closed across the signal generating means electric contact (FIG. 8) to maintain power on the motor 56 for sufficient time for the gear 62 of the reduction gear train 58 to rotate through its predetermined arc. (Page 22, first paragraph.) Circuit board 102 provides a pulse of electrical energy to the motor 56 of such duration as to rotate the gear 62 through a predetermined arc, at which point the motor stalls. "At the end of this arc, power to motor 56 is cut off, and spring 48 moves the plunger pin 65 back to its closed position." (Page 14, second paragraph.) "In another embodiment of the invention (FIGS. 5 and 6), a position sensor 110 (e.g., a limit switch or proximity detector) is used to determine a rotational position of the gear 62." (Page 22, second paragraph.) "When the gear 62 is in the first position (FIG. 5) the position sensor 110 is activated by the sensor activating element 114. When the gear 62 rotates out of the first position the position sensor 110 becomes deactivated until the gear (and sensor activating element 114) again returns to the first position." (Page 23, first paragraph.) Thus, Muderlak discloses one sensor 110 that may be activated and deactivated as the gear 62 rotates or a circuit board 102 that provides a pulse of electrical energy and then the motor stalls. Muderlak fails to teach or suggest an electrical switch and a mechanical switch as claimed in claim 1 or a sensing logic that initiates rotation of a motor shaft and a braking logic configured to interrupt a power connection to the motor as claimed in claim 9.

In contrast to Muderlak, Applicant discloses an overrun braking system where a motor is precisely braked using an electrical switch and a mechanical switch that is configured to turn on just before the electrical switch is turned off as claimed in claim 1. Further, Applicant discloses a sensing logic to initiate rotation of a motor shaft and a

braking logic configured to interrupt a power connection to the motor as claimed in claim 9.

Thus, Applicant asserts that the claimed invention is not anticipated by Muderlak. Applicant respectfully requests the rejection of claims 1-17 under 35 USC §102(b) be withdrawn.

SUMMARY

In view of the remarks and amendments above, Applicant respectfully submits that the claims are in condition for allowance. If any issues remain, Applicant requests that the Examiner call the undersigned to expedite the prosecution of the application.

Respectfully submitted,

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Attachment: Appendix (six sheets)